

IN THE CLAIMS:

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A
1. (Currently Amended) A. distillation apparatus comprising:
- (a) a column body;
 - (b) a partition for dividing the interior of said column body into a first chamber and a second chamber, which are adjacent to each other;
 - (c) a feed nozzle for feeding into said column body a material liquid containing at least first to third components;
 - (d) a first distillation section comprising ~~an~~ a first enriching section, which is formed at the first chamber, located at an upper portion thereof and ~~an~~ a first exhaust section, which is formed at the first chamber, located at a lower portion thereof;
 - (e) a second distillation section disposed such that at least a portion thereof is adjacent to the top of said column body, and comprising ~~an~~ a second enriching section located at an upper portion thereof and ~~an~~ a second exhaust section, which is formed at the second chamber, located at a lower portion thereof;
 - (f) a third distillation section disposed such that at least a portion thereof is adjacent to the bottom of said column body, and comprising ~~an~~ a third enriching section, which is formed at the second chamber, located at an upper portion thereof and ~~an~~ a third exhaust section located at a lower portion thereof;
 - (g) ~~first discharge means~~ discharger connected to the second enriching section for discharging the first component;

(h) ~~second discharge means~~ discharger connected to the area between the second exhaust section and the third enriching section for discharging the second component; and

(i) ~~third discharge means~~ discharger connected to the third exhaust section for discharging the third component, wherein

(j) said partition is biased such that the cross-sectional area of the first chamber differs from that of the second chamber.

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A 2. (Original) A distillation apparatus as described in claim 1, wherein said first distillation section is disposed at the center of said column body.

3. (Currently Amended) A distillation apparatus as described in claim 1, wherein said feed nozzle ~~is adapted to feed~~ feeds the material liquid into the first distillation section.

4. (Currently Amended) A distillation apparatus as described in claim 1, wherein ^ua ³packing ^{se}is disposed in at least the first enriching section and the first exhaust section ~~of said first distillation section~~ such that the packing disposed in the enriching section and the packing disposed in the exhaust section are independent of each other. 743

5. (Currently Amended) A distillation apparatus as described in claim 1, wherein:

(a) said second distillation section comprises the second enriching section connected to and formed above an upper end of said first distillation section; and the second exhaust section formed below the upper end and located adjacent to

the first enriching section of ~~said first distillation section~~ while being separated by said partition; and

(b) said third distillation section comprises the third enriching section connected to and formed above a lower end of said first distillation section, and located adjacent to the first exhaust section of ~~said first distillation section~~ while being separated by said partition; and the third exhaust section formed below the lower end.

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A 6. (Currently Amended) A distillation apparatus -as described in claim 3, wherein said feed nozzle is disposed between the first enriching section and the first exhaust section in said first distillation section.

7. (Original) A distillation apparatus as described in claim 4, wherein the packings are of the same kind.

8. (Original) A distillation apparatus as described in claim 4, wherein the packings are of different kinds.

9. (Currently Amended) A distillation apparatus comprising:

- (a) a column body;
- (b) a partition for dividing the interior of said column body into a first chamber and a second chamber, which are adjacent to each other;
- (c) a feed nozzle for feeding into said column body a material liquid containing at least first to third components;

(d) a first distillation section comprising ~~an~~ a first enriching section,
which is formed at the first chamber, located at an upper portion thereof and ~~an~~ a first
exhaust section, which is formed at the first chamber, located at a lower portion thereof;

(e) a second distillation section disposed such that at least a portion
thereof is adjacent to the top of said column body, and comprising ~~an~~ a second
enriching section located at an upper portion thereof and ~~an~~ a second exhaust section,
which is formed at the second chamber, located at a lower portion thereof;

(f) a third distillation section disposed such that at least a portion
thereof is adjacent to the bottom of said column body, and comprising ~~an~~ a third
enriching section, which is formed at the second chamber, located at an upper portion
thereof and ~~an~~ a third exhaust section located at a lower portion thereof;

(g) ~~first discharge means~~ discharger connected to the second enriching
section for discharging the first component;

(h) ~~second discharge means~~ discharger connected to the area
between the second exhaust section and the third enriching section for discharging the
second component; and

(i) ~~third discharge means~~ discharger connected to the third exhaust
section for discharging the third component, wherein

(j) liquid descending from the second enriching section ~~of said second~~
~~distillation section~~ is distributed between the first enriching section ~~of said first distillation~~
~~section~~ and the second exhaust section ~~of said second distillation section~~ at a
distribution ratio which is predetermined on the basis of distillation conditions; and

(k) a pressure loss arising in said first distillation section is equalized with sum of a pressure loss arising in the exhaust section of said second distillation section and a pressure loss arising in the enriching section of said third distillation section.

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A 10. (Currently Amended) A distillation apparatus as described in claim 9, wherein an F factor in at least said first distillation section, the second exhaust section of said ~~second distillation section~~, and the third enriching section of said ~~third distillation section~~ is set to a value that enables obtainment of a pressure loss almost free from influence of the amount of descending liquid.

11. (Currently Amended) A distillation apparatus as described in claim 9, wherein an F factor in at least said first distillation section, the second exhaust section of said ~~second distillation section~~, and the third enriching section of said ~~third distillation section~~ is 1.0-1.5.

12. (Currently Amended) A distillation apparatus as described in claim 9, wherein the pressure losses are calculated on the basis of the number of theoretical stages, the number of ~~theoretical~~ theoretical stages per meter, and a pressure loss per unit height.

13. (Currently Amended) A distillation apparatus as described in claim 9, wherein the ratio between the cross-sectional area of said first distillation section and the cross-sectional area of the second exhaust section of said ~~second distillation section~~ and the ratio between the cross-sectional area of said first distillation section and the

cross-sectional area of the third enriching section of ~~said third distillation section~~ are established according to the amount of ascending vapor.

14. (Currently Amended) A distillation apparatus comprising:

- (a) a column body;
- (b) a partition for dividing the interior of said column body into a plurality of chambers, which, are adjacent to one another;
- (c) a collector disposed within said column body and adapted to collect liquid descending from above; and
- (d) a channel-type distributor having a plurality of holes for distributing liquid collected by said collector, ~~among the chambers in different portions~~ and making the amount of liquid to differ among each chamber.

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15. (Currently Amended) A distillation apparatus comprising:

- (a) a column body
- (b) a partition ,for dividing the interior of said column body into a plurality of chambers, which are adjacent to one another;
- (c) a collector disposed within said column body and adapted to collect liquid descending from above; and
- (d) an open static-pressure-type tubular distributor having a plurality of holes for distributing liquid collected by said collector, ~~among the chambers in different portions~~ and making the amount of liquid to differ among each chamber.

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16. (Original) A distillation apparatus comprising:

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- (a) a column body;
 - (b) a partition for dividing the interior of said column body into a plurality of chambers, which are adjacent to one another;
 - (c) a collector disposed within said column body and adapted to collect liquid descending from above; and
 - (d) an open static-pressure-type tubular distributor for distributing liquid collected by said collector to a single chamber located therebelow, wherein
 - (e) said distributor comprises an open static-pressure-type stand pipe for accumulating liquid discharged from said collector so as to establish a predetermined head; a first distribution section for distributing liquid in a direction perpendicular to said partition; and a second distribution section disposed in connection with the first distribution section and adapted to distribute liquid having been distributed by the first distribution section, in the same direction as that of said partition; and
 - (f) the first distribution section is connected to a lower end of the stand pipe at a position biased toward said partition from the center of the chamber.
- 7.43.01

17. (Original) A distillation apparatus comprising:

- (a) a column body;
- (b) a partition for dividing the interior of said column body into a plurality of chambers, which are adjacent to one another;
- (c) a collector box for forming a liquid collection gutter along an inner wall of each of said column body and said partition; and

(d) a plurality of collector laminas disposed on said collector box at predetermined pitches in parallel with one another, wherein

(e) each of said collector laminas comprises an inclined portion and a gutter portion, and one end of the gutter portion faces the column body side of the liquid collection gutter while the other end of the gutter portion faces the partition side of the liquid collection gutter.

18. (Original) A distillation apparatus comprising:

(a) a column body;

(b) a partition for dividing the interior of said column body into a plurality of chambers, which are adjacent to one another;

(c) a collector box forming a liquid collection gutter along an inner wall of each of said column body and said partition; and

(d) a plurality of collector laminas disposed on said collector box at predetermined pitches in parallel with one another, wherein

(e) said collector box and said collector laminas are assembled in advance, and said collector box is engaged with said column body and said partition.

19. (Currently Amended) A distillation apparatus as described in claim 18, wherein:

(a) an upper end of said collector box is engaged with said column body and said partition; and

(b) a flange of said column body and said partition are sealed against

each other by means of a gasket assuming wherein said gasket has a form

corresponding to said column body and said partition.

20. (Withdrawn)

21. (Withdrawn)